

**UNITED STATES DEPARTMENT OF COMMERCE****United States Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/726,588 04/13/01 ABE

H

027649
MICHAEL TOBIAS
1730 K ST NW
SUITE 304
WASHINGTON DC 20006

IM22/0806

EXAMINER

STONER, K

ART UNIT

PAPER NUMBER

1725

DATE MAILED:

08/06/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/726,588

Applicant(s)

ABE ET AL.

Examiner

Kiley Stoner

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Art Unit: 1725

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-3 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 3, line 2 "as at least a portion thereof" is nonidiomatic language and must be corrected.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 and 4-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diamant et al. (5,989,362). Although Diamant et al. does not teach the composition of the flux in mass percent, the Examiner believes that the weight percentages of the fluxing composition in Diamant et al. would satisfy the claimed ranges of the instant application. Diamant et al. teaches a soldering flux comprising 0.1-70 mass percent of an organic acid (abstract; column 2, line 64-column 3, line 3;

Art Unit: 1725

examples 1-29, columns 9-14); 5-40 mass percent of a solvent (abstract; examples 1-29, columns 9-14); and a total of 10-95 mass percent of a thermosetting resin and a curing agent wherein during soldering of a component, the flux exhibits a function of securing the component by the thermosetting resin (abstract; examples 1-29, columns 9-14); the organic acid is one or more classes selected from the group consisting of rosins, carboxylic acids and carboxylic acid anhydrides (column 6, lines 43-58 and column 8, lines 29-44); the thermosetting resin is an epoxy resin (abstract); the thermosetting resin is a bisphenol A epoxy resin (abstract); the curing agent is one or more classes selected from the group consisting of carboxylic acid anhydrides and amines (abstract); the organic acid contains 0.1-50 mass percent of at least one class or organic acid other than a carboxylic acid anhydride (abstract; column 4, lines 25-36; and column 6, lines 43-58); 0.1-10 mass percent of a thixotropic agent (abstract and column 9, lines 50-67); a soldering paste which is a mixture of a powder of a solder alloy having a melting point of at least 150C and the flux of claim 1 (abstract and column 3, lines 40-48; and column 9, lines 27-31); the total amount of thermosetting resin and the curing agent in the flux is 50-95 mass percent (abstract); the thermosetting resin in the flux is an epoxy resin (abstract); the flux further contains 0.1-10 mass percent of a thixotropic agent (abstract and column 9, lines 50-67); securing by solder and a resin in which a first member is soldered to a second member using the flux described in claim 1 and solder (column 1, line 19-column 2, line 34; column 3, lines 40-48; and column 9, lines 27-31); securing by solder and a resin in which a first member is soldered to a second member using the solder paste described in claim 9 (column 1, line 19-column

Art Unit: 1725

2, line 34; column 3, lines 40-48; and column 9, lines 27-31); the first member is an electronic component and the second member is a substrate having a large number of electrodes and the soldering temperature is at least 150C (column 1, line 19-column 2, line 34; column 3, lines 40-48; and column 9, lines 27-31); and the first member is an electronic component and the second member is a substrate having a large number of electrodes and the soldering temperature is at least 150C (column 1, line 19-column 2, line 34; column 3, lines 40-48; and column 9, lines 27-31).

Claims 1-2 and 4-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diamant et al. (5,851,311). Although Diamant et al. does not teach the composition of the flux in mass percent, the Examiner believes that the weight percentages of the fluxing composition in Diamant et al. would satisfy the claimed ranges of the instant application. Diamant et al. teaches a soldering flux comprising 0.1-70 mass percent of an organic acid (abstract; column 2, line 60-column 3, line 8; examples 1-19, columns 7-10; and the claims); 5-40 mass percent of a solvent (abstract; examples 1-19; and the claims); and a total of 10-95 mass percent of a thermosetting resin and a curing agent wherein during soldering of a component, the flux exhibits a function of securing the component by the thermosetting resin (abstract; examples 1-29, columns 9-14; and the claims); the organic acid is one or more classes selected from the group consisting of rosins, carboxylic acids and carboxylic acid anhydrides (column 6, lines 26-41 and column 8, lines 29-44); the thermosetting resin is an epoxy resin (abstract); the thermosetting resin is a bisphenol A epoxy resin (abstract); the curing agent is one or more classes selected from the group consisting of

Art Unit: 1725

carboxylic acid anhydrides and amines (abstract); the organic acid contains 0.1-50 mass percent of at least one class or organic acid other than a carboxylic acid anhydride (abstract; column 4, lines 12-23; and column 6, lines 26-41); 0.1-10 mass percent of a thixotropic agent (abstract; column 7, lines 50-63; and claim 38); a soldering paste which is a mixture of a powder of a solder alloy having a melting point of at least 150C and the flux of claim 1 (abstract and column 3, lines 23-32); the total amount of thermosetting resin and the curing agent in the flux is 50-95 mass percent (abstract the claims); the thermosetting resin in the flux is an epoxy resin (abstract and the claims); the flux further contains 0.1-10 mass percent of a thixotropic agent (abstract; column 7, lines 50-63; and claim 38); securing by solder and a resin in which a first member is soldered to a second member using the flux described in claim 1 and solder (column 1, line 12-column 2, line 29 and column 3, lines 23-32); securing by solder and a resin in which a first member is soldered to a second member using the solder paste described in claim 9 (column 1, line 12-column 2, line 29 and column 3, lines 23-32); the first member is an electronic component and the second member is a substrate having a large number of electrodes and the soldering temperature is at least 150C (column 1, line 12-column 2, line 29 and column 3, lines 23-32); and the first member is an electronic component and the second member is a substrate having a large number of electrodes and the soldering temperature is at least 150C (column 1, line 12-column 2, line 29 and column 3, lines 23-32).

Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gomi et al. (5,215,601). Although Gomi et al. does not teach the composition of the flux

Art Unit: 1725

in mass percent, the Examiner believes that the weight percentages of the fluxing composition in Gomi et al. would satisfy the claimed ranges of the instant application. Gomi et al. teaches a soldering flux comprising 0.1-70 mass percent of an organic acid (column 4, lines 30-35); 5-40 mass percent of a solvent (column 4, lines 30-35); and a total of 10-95 mass percent of a thermosetting resin and a curing agent wherein during soldering of a component, the flux exhibits a function of securing the component by the thermosetting resin (column 4, lines 30-45); the organic acid is one or more classes selected from the group consisting of rosins, carboxylic acids and carboxylic acid anhydrides (column 4, lines 36-45) the thermosetting resin is an epoxy resin (claim 7); and the thermosetting resin is a bisphenol A epoxy resin (claims 6 and 7). Gomi et al. teaches a flux containing an organic acid and a rosin, therefore when these components are intermixed prior to curing the organic acid does indeed contain a rosin.

In addition, Gomi et al. teaches the curing agent is one or more classes selected from the group consisting of carboxylic acid anhydrides and amines (column 4, lines 10-18); the organic acid contains 0.1-50 mass percent of at least one class or organic acid other than a carboxylic acid anhydride (column 4, lines 10-18 and 30-35); 0.1-10 mass percent of a thixotropic agent (column 5, lines 5-8); a soldering paste which is a mixture of a powder of a solder alloy having a melting point of at least 150C and the flux of claim 1 (column 1, line 6-column 2, line 14); the total amount of thermosetting resin and the curing agent in the flux is 50-95 mass percent (column 4, lines 30-35); the thermosetting resin in the flux is an epoxy resin (claim 7); the flux further contains 0.1-10 mass percent of a thixotropic agent (column 5, lines 5-8); securing by solder and a resin in which a

Art Unit: 1725

first member is soldered to a second member using the flux described in claim 1 and solder (column 1, line 6-column 2, line 14); securing by solder and a resin in which a first member is soldered to a second member using the solder paste described in claim 9 (column 1, line 6-column 2, line 14); the first member is an electronic component and the second member is a substrate having a large number of electrodes and the soldering temperature is at least 150C (column 1, line 6-column 2, line 14); and the first member is an electronic component and the second member is a substrate having a large number of electrodes and the soldering temperature is at least 150C (column 1, line 6-column 2, line 14).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Capote et al. (5,830,389); Arima (5,741,622); Takemoto et al. (5,167,729); Taduchi et al. (6,220,501 B1); Gomi et al. (5,215,601); and Diamant et al. (5,989,362) are cited as of interest.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiley Stoner whose telephone number is (703) 305-0723. The examiner can normally be reached on Monday-Thursday (7:30 a.m. to 6:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on Monday-Friday. The fax phone numbers for

Art Unit: 1725

the organization where this application or proceeding is assigned are (703) 305-3599 for regular communications and (703) 305-6078 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

KS 7-30-01



TOM DUNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700